Dell Latitude E6220 Owner's Manual

Regulatory Model P15S
Regulatory Type P15S001

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

2011 — 07

Contents

Working on Your Computer 1

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have performed the steps in Working on Your Computer.
- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see *Turning Off Your Computer*).
3. If the computer is connected to a docking device (docked) such as the optional Media Base or Battery Slice, undock it.

CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

4. Disconnect all network cables from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Close the display and turn the computer upside-down on a flat work surface.

NOTE: To avoid damaging the system board, you must remove the main battery before you service the computer.

7. Remove the main battery (see *Battery*).
8. Turn the computer top-side up.
9. Open the display.
10. Press the power button to ground the system board.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

11. Remove any installed ExpressCards or Smart Cards from the appropriate slots.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver

- #0 Phillips screwdriver
- #1 Phillips screwdriver
- Small plastic scribe
- Flash BIOS update program CD

Turning Off Your Computer

> **CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.**

1. Shut down the operating system:

   - In Windows Vista :

     Click **Start** , then click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.

   - In Windows XP:

     Click **Start → Turn Off Computer → Turn Off** . The computer turns off after the operating system shutdown process is complete.

2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

> **CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.**

1. Connect any external devices, such as a port replicator, battery slice, or media base, and replace any cards, such as an ExpressCard.
2. Connect any telephone or network cables to your computer.

CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.

3. Replace the battery.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

Battery 2

Removing The Battery

1. Follow the procedures in *Before Working On Your Computer*.
2. Slide the battery release latches to the unlock position.



3. Remove the battery from the computer.



Installing The Battery

1. Insert the battery into its compartment.
2. Rotate the battery downward until it clicks into place.
3. Follow the procedures in *After Working Inside Your Computer*.

Secure Digital (SD) Card

3

Removing The Secure Digital (SD) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Press in on the SD card to release it from the computer.



3. Grasp the SD card and pull out to release from the computer.



Installing The Secure Digital (SD) Card

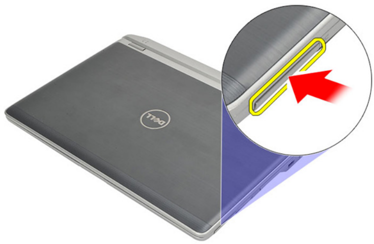
1. Slide the SD card into its slot and press it until it clicks into place.
2. Follow the procedures in *After working inside your computer*.

ExpressCard

4

Removing The ExpressCard

1. Follow the procedures in *Before Working On Your Computer*.
2. Press in on the ExpressCard to release it from the computer.



3. Pull the ExpressCard out of the computer.



Installing The ExpressCard

1. Slide the ExpressCard into its slot and press it until it clicks into place.
2. Follow the procedures in *After Working Inside Your Computer*.

Subscriber Identity Module (SIM) Card 5

Removing The Subscriber Identity Module (SIM) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Press in on the SIM card to release it from the computer.



4. Grasp the SIM card and pull out to release from the computer.



Installing The Subscriber Identity Module (SIM) Card

1. Slide the SIM card into its compartment.
2. Install the *battery*.
3. Follow the procedures in *After Working Inside Your Computer*.

Base Cover 6

Removing The Base Cover

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Loosen the captive screw that secures the base cover to the computer.



4. Slide the base cover towards the back of the computer and remove it.

   NOTE: To lift up and remove the base cover easily from the computer ensure that you first slide the base cover towards the back of the computer.



Installing The Base Cover

1. Align in position the edge of the base cover onto the computer and slide it on the computer.
2. Tighten the screw to secure the base cover to the computer.

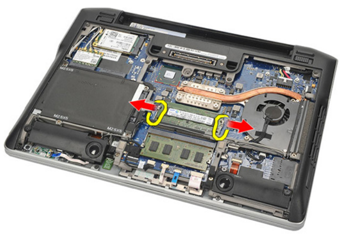
NOTE: To insert the screw easily align the base cover correctly.

3. Install the *battery*.
4. Follow the procedures in *After Working Inside Your Computer*.

Memory 7

Removing The Memory

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Pry apart the retention clips securing each end of the memory module connector until the memory module pops up.



5. Remove the memory.

NOTE: DIMM A slot is the closest to the processor. If there is another memory installed in the DIMM B slot, repeat step 4 and 5.



Installing The Memory

1. Insert the memory into the memory socket.
2. Press the clips to secure the memory module to the computer.
3. Install the *base cover*.
4. Install the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

Hard Drive 8

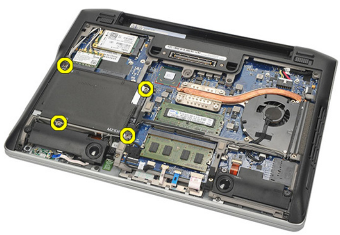
Removing The Hard Drive

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.

   NOTE: If you need to remove the hard drive to subsequently remove any other part in the computer, then do not remove the hard drive bracket and the SATA interposer.

   NOTE: The Latitude E6220 offers the SATA or M-SATA hard drive.

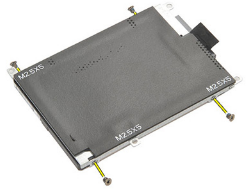
4. Remove the screws that secure the hard drive to the computer.



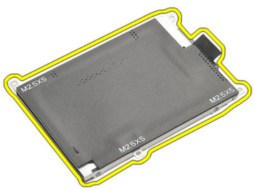
5. Use the mylar tab to lift up the hard drive up and remove it from the computer.



6. Remove the screws from the hard drive bracket.

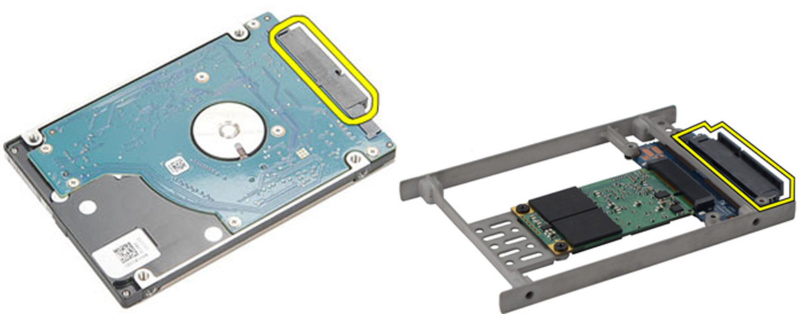


7. Remove the hard drive bracket.



8. Remove the SATA interposer from the hard drive or the M-SATA hard drive.

NOTE: The SATA interposer must be removed and installed while replacing and installing the hard drive.



Installing The Hard Drive

1. Align the hard drive bracket to the hard drive.
2. Replace and tighten the hard drive bracket screws on each side.
3. Place the hard drive in its compartment and connect it to the system board.
4. Tighten the screws to secure the hard drive to the computer.
5. Install the *battery*.
6. Install the *base cover*.
7. Follow the procedures in A*fter working inside your computer*.

M-SATA Hard Drive 9

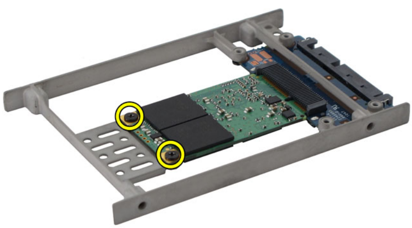
Removing The M-SATA Hard Drive

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *hard drive*.

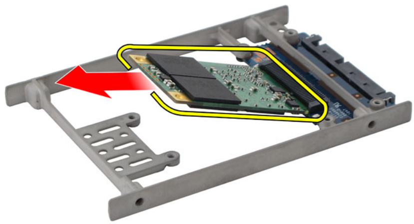
   NOTE: If you need to remove the M-SATA hard drive to subsequently remove any other part in the computer, then do not remove the hard drive bracket and the SATA interposer.

   NOTE: The Latitude E6220 offers the SATA or M-SATA hard drive.

   NOTE: The SATA interposer must be removed and installed while removing and installing the M-SATA hard drive
5. Remove the screws that secure the Solid State Drive (SSD) in place.



6. Remove the SSD.



Installing The M-SATA Hard Drive

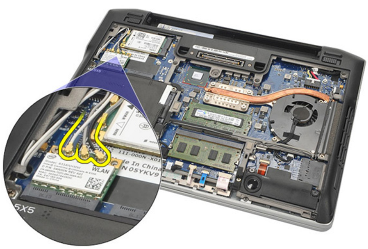
1. Insert the Solid State Drive (SSD) into its slot and tighten the screws to secure the card in place.
2. Attach the SATA interposer to the M-SATA hard drive.
3. Install the *hard drive*.
4. Install the *base cover*.
5. Install the *battery*.
6. Follow the procedures in *After working inside your computer*.

Wireless Local Area Network (WLAN) Card 10

Removing The Wireless Local Access Network (WLAN) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Disconnect the antenna cables from the WLAN card.

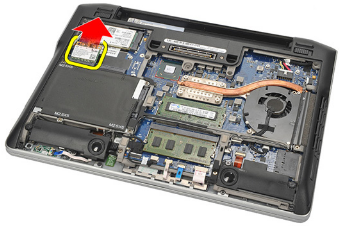
   NOTE: The WLAN antenna cables are solid colors while the WWAN antenna cables are striped.



5. Remove the screw that secures the WLAN card to the computer.



6. Remove the WLAN card from the computer.



Installing The Wireless Local Access Network (WLAN) Card

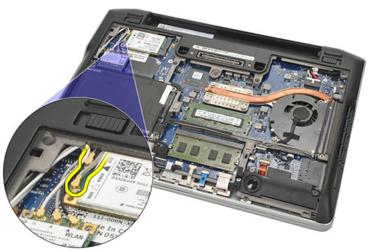
1. Insert the WLAN card into its slot.
2. Connect the antenna cables to their respective connectors marked on the WLAN card.
3. Replace and tighten the screw to secure the WLAN card to the computer.
4. Install the *base cover*.
5. Install the *battery*.
6. Follow the procedures in *After Working Inside Your Computer*.

Wireless Wide Area Network (WWAN) Card 11

Removing The Wireless Wide Area Network (WWAN) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Disconnect the antenna cables from the WWAN card.

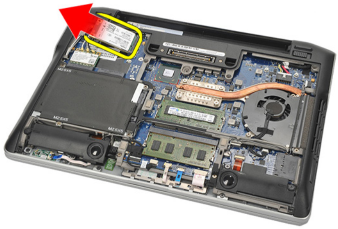
   NOTE: The WLAN antenna cables are of solid colors while the WWAN antenna cables are striped.



5. Remove the screw that secures the WWAN card to the computer.



6. Remove the WWAN card from the computer.



Installing The Wireless Wide Area Network (WWAN) Card

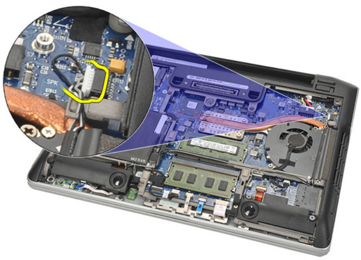
1. Insert the WWAN card into its slot.
2. Connect the antenna cables to their respective connectors marked on the WWAN card.
3. Replace and tighten the screw to secure the WWAN card to the computer.
4. Install the *base cover*.
5. Install the *battery*.
6. Follow the procedures in *After Working Inside Your Computer*.

Speaker

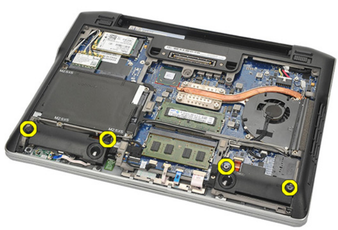
12

Removing The Speakers

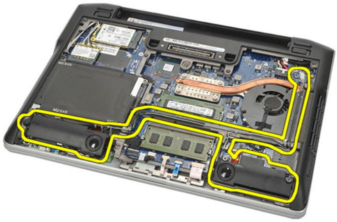
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Disconnect the cable from the system board.



5. Loosen the captive screws from the two speakers.



6. Unthread the speaker cable from its holder and remove the speakers from the computer.



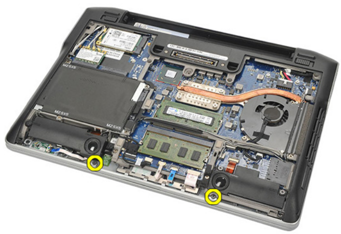
Installing The Speakers

1. Insert the speakers into their slots.
2. Tighten the captive screws to secure the speakers.
3. Route the speaker cable along its holder.
4. Connect the cable to the system board.
5. Install the *base cover*.
6. Install the *battery*.
7. Follow the procedures in *After working inside your computer*.

Palm Rest 13

Removing The Palm Rest

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the screws securing the palm rest.



5. Disconnect the following cables:
   - fingerprint reader
   - touchpad
   - contactless smart card reader

   NOTE: The palm rest either has a fingerprint reader along with contactless smart card modules or neither of them.



6. Turn over the computer. Using a plastic scribe, gently pry out the top left corner of the palm rest. Slide the plastic scribe along the top of the palm rest releasing all the snaps before releasing the rest of the snaps to the left, right, and bottom of the palm rest.



7. Remove the palm rest from the computer.



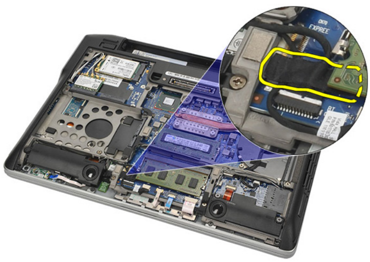
Installing The Palm Rest

1. Align the palm rest assembly to its original position on the computer and snap it into place.
2. Connect the following cables to the system board:
   - fingerprint reader
   - touchpad
   - contactless smart card reader
3. Replace and tighten the screws to secure the palm rest to the computer.
4. Install the *base cover*.
5. Install the *battery*.
6. Follow the procedures in *After Working Inside Your Computer*.

Bluetooth Module 14

Removing The Bluetooth Module

1. Follow the procedures in *Before Working on Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *hard drive*.
5. Remove the cloth tape to disconnect the Bluetooth cable from the system board.



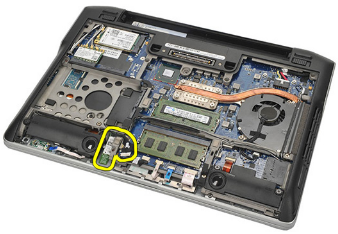
6. Remove the screw securing the Bluetooth holder.



7. Remove the Bluetooth holder.



8. Remove the Bluetooth module and cable.



9. Disconnect the cable from the Bluetooth.



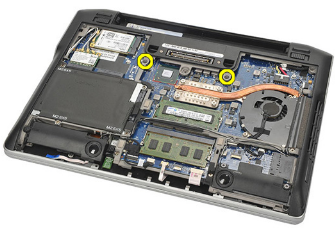
Installing The Bluetooth Module

1. Connect the Bluetooth module with its cable.
2. Insert the Bluetooth module into its slot.
3. Place the Bluetooth holder on top of the Bluetooth module.
4. Tighten the screw securing the holder and Bluetooth in place.
5. Connect the other end of Bluetooth cable to the system board and attach it with the cloth tape.
6. Install the *hard drive*.
7. Install the *base cover* .
8. Install the *battery*.
9. Follow the procedures in *After Working Inside Your Computer*.

Keyboard 15

Removing The Keyboard

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *palm rest*.
5. Remove the screws from the bottom chassis.



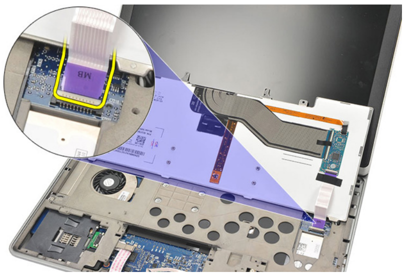
6. Turn over the computer. Remove the screws from the keyboard.



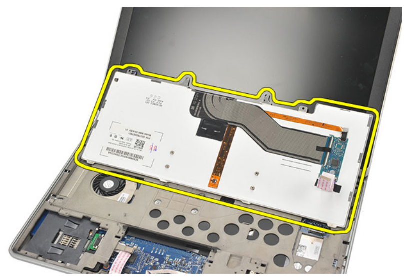
7. Take out the keyboard and flip it over the display panel.



8. Disconnect the keyboard cable from the system board.



9. Remove the keyboard from the computer.



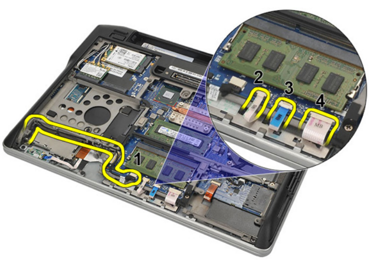
Installing The Keyboard

1. Connect the keyboard cable to the system board.
2. Insert the keyboard in its compartment.
3. Replace and tighten the screws to secure the keyboard.
4. Turn over the computer and tighten the screws to secure the bottom chassis.
5. Replace and tighten the screws to secure the keyboard to the palm rest.
6. Install the *base cover*.
7. Install the *battery*.
8. Install the *keyboard trim*.
9. Follow the procedures in *After Working Inside Your Computer*.

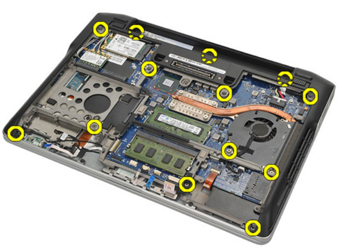
Bottom Chassis 16

Removing The Bottom Chassis

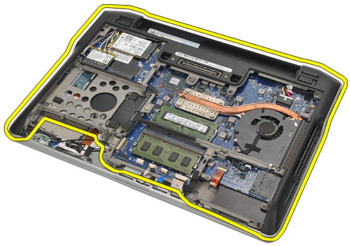
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *battery*.
4. Remove the *base cover*.
5. Remove the *hard drive*.
6. Remove the *Bluetooth module*.
7. Remove the *speakers*.
8. Remove the following cables:
   - hall sensor
   - fingerprint reader
   - touchpad
   - smart card reader



9. Remove the screws from the bottom chassis.



10. Starting from the back of the computer, gently lift up the bottom base chassis and carefully detach the Certificate of Authenticity (COA) label from the computer before lifting the entire bottom chassis out from the computer.



Installing The Bottom Chassis

1. Align the bottom chassis to the computer and press the Certificate of Authenticity (COA) label in place.
2. Tighten the screws to secure the bottom chassis.
3. Connect the following cables:
   - hall sensor
   - fingerprint reader
   - touchpad
   - smart card reader
4. Install the *speakers*.
5. Install the *Bluetooth module*.
6. Install the *hard drive*.
7. Install the *base cover*.
8. Install the *battery*.
9. Install the *secure digital (SD) Card*.
10. Follow the procedures in *After Working Inside Your Computer*.

Coin-Cell Battery 17

Removing The Coin-Cell Battery

1. Follow the procedures in *Before Working on Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *battery*.
4. Remove the *base cover*.
5. Remove the *hard drive*.
6. Remove the *Bluetooth module*.
7. Remove the *speakers*.
8. Remove the *bottom chassis*.
9. Disconnect the coin-cell battery cable from the system board.



10. Remove the coin-cell battery from the computer.



Installing The Coin-Cell Battery

1. Connect the coin-cell battery cable to the system board.
2. Press the coin-cell battery into its slot.
3. Install the *speakers*.
4. Install the *Bluetooth module*.
5. Install the *hard drive*.
6. Install the *base cover*.
7. Install the *battery*.
8. Install the *secure digital (SD) Card*.
9. Install the *bottom chassis*.
10. Follow the procedures in *After working inside your computer*.

Heat Sink 18

Removing The Heat Sink

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *battery*.
4. Remove the *base cover*.
5. Remove the *hard drive*.
6. Remove the *Bluetooth module*.
7. Remove the *speakers*.
8. Remove the *bottom chassis*.
9. Disconnect the CPU fan cable from the system board.



10. Loosen the captive screws from the heat sink and remove the screw from the CPU fan.



11. Remove the heat sink and the CPU fan assembly.



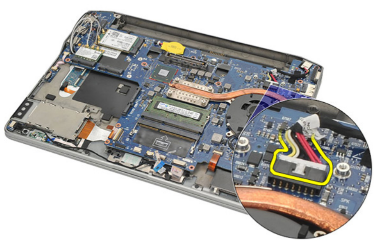
Installing The Heat Sink

1. Align the heat sink and CPU fan assembly in place.
2. Tighten the screws to secure the heat sink and CPU fan.
3. Connect the CPU fan cable to the system board.
4. Install the *bottom chassis*.
5. Install the *speakers*.
6. Install the *Bluetooth module*.
7. Install the *hard drive*.
8. Install the *base cover*.
9. Install the *battery*.
10. Install the *secure digital (SD) Card*.
11. Follow the procedures in *After Working Inside Your Computer*.

DC-In Connector 19

Removing The DC-in-Connector

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *battery*.
4. Remove the *base cover*.
5. Remove the *hard drive*.
6. Remove the *Bluetooth module*.
7. Remove the *speakers*.
8. Remove the *bottom chassis*.
9. Disconnect the DC-In cable from the system board.



10. Lift and remove the DC-In connector from the computer.



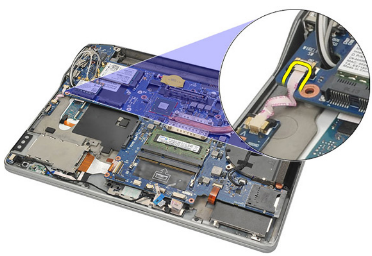
Installing The DC-in-Connector

1. Insert the DC-In connector into its compartment.
2. Connect the DC-In cable to the system board.
3. Install the *bottom chassis*.
4. Install the *speakers*.
5. Install the *Bluetooth module*.
6. Install the *hard drive*.
7. Install the *base cover*.
8. Install the *battery*.
9. Install the *secure digital (SD) Card*.
10. Follow the procedures in *After Working Inside Your Computer*.

Wireless Switch 20

Removing The Wireless Switch

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *battery*.
4. Remove the *base cover*.
5. Remove the *hard drive*.
6. Remove the *Bluetooth module*.
7. Remove the *speakers*.
8. Remove the *bottom chassis*.
9. Disconnect the wireless switch cable from the system board.



10. Remove the screw securing the wireless switch.



11. Remove the wireless switch.



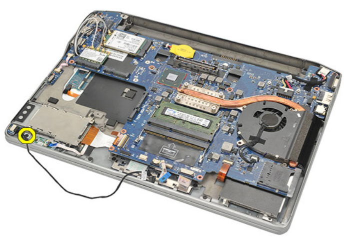
Installing The Wireless Switch

1. Insert the wireless switch into its compartment.
2. Tighten the screw to secure the wireless switch in place.
3. Connect the wireless switch cable to the system board.
4. Install the *bottom chassis*.
5. Install the *speakers*.
6. Install the *Bluetooth module*.
7. Install the *hard drive*.
8. Install the *base cover*.
9. Install the *battery*.
10. Install the *secure digital (SD) Card*.
11. Follow the procedures in *After Working Inside Your Computer*.

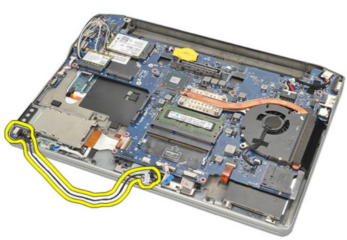
Hall Sensor 21

Removing The Hall Sensor

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *battery*.
4. Remove the *base cover*.
5. Remove the *hard drive*.
6. Remove the *Bluetooth module*.
7. Remove the *speakers*.
8. Remove the *bottom chassis*.
9. Remove the screw securing the hall sensor.



10. Remove the hall sensor with its cable.



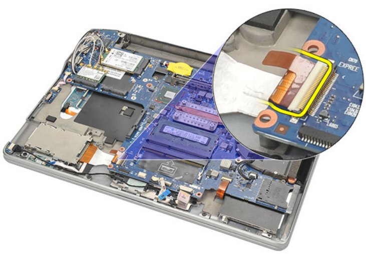
Installing The Hall Sensor

1. Insert the hall sensor in its place.
2. Tighten the screw to secure the hall sensor.
3. Install the *bottom chassis*.
4. Install the *speakers*.
5. Install the *Bluetooth module*.
6. Install the *hard drive*.
7. Install the *base cover*.
8. Install the *battery*.
9. Install the *secure digital (SD) Card*.
10. Follow the procedures in *After Working Inside Your Computer*.

ExpressCard Cage 22

Removing The ExpressCard Cage

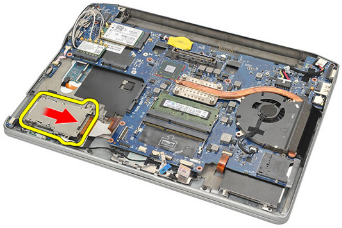
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *battery*.
4. Remove the *base cover*.
5. Remove the *hard drive*.
6. Remove the *Bluetooth module*.
7. Remove the *speakers*.
8. Remove the *bottom chassis*.
9. Disconnect the flex cable from the system board.



10. Remove the screws securing the ExpressCard cage.



11. Slide out the ExpressCard cage.



12. Lift up and remove the ExpressCard cage from the computer.



Installing The ExpressCard Cage

1. Slide the ExpressCard cage in place.
2. Tighten the screws to secure the ExpressCard cage.
3. Connect the flex cable to the system board.
4. Install the *bottom chassis*.
5. Install the *speakers*.
6. Install the *bluetooth module*.
7. Install the *hard drive*.
8. Install the *base cover*.
9. Install the *battery*.
10. Install the *secure digital (SD) Card*.
11. Follow the procedures in *After Working Inside Your Computer*.

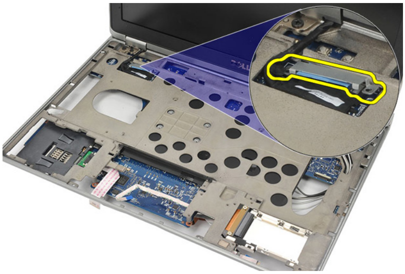
System Board 23

Removing The System Board

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *battery*.
4. Remove the *Subscriber Identity module (SIM) Card*.
5. Remove the *base cover*.
6. Remove the *memory*.
7. Remove the *hard drive*.
8. Remove the *Wireless Local Access Network (WLAN) card*.
9. Remove the *Wireless Wide Area Network (WWAN) card*.
10. Remove the *Bluetooth module*.
11. Remove the *speakers*.
12. Remove the *palm rest*.
13. Remove the *keyboard*.
14. Remove the *bottom chassis*.
15. Remove the *heatsink*.
16. Remove the *DC-in-Connector*.
17. Remove the *coin-cell battery*.
18. Remove the screws securing the Low-voltage differential signaling (LVDS) bracket.



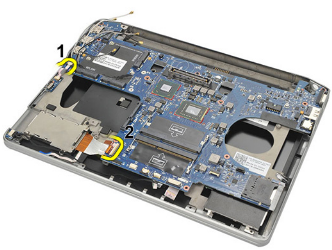
19. Remove the LVDS bracket.



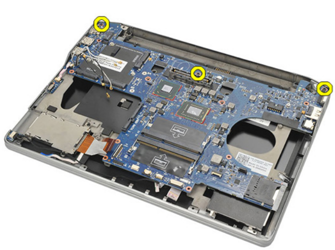
20. Disconnect the LVDS cable.



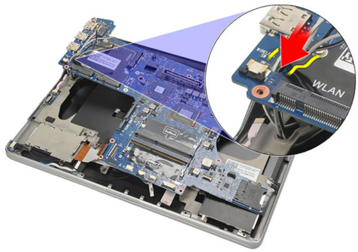
21. Turn the computer over and disconnect the following cables from the system board:
    - wireless switch
    - express card



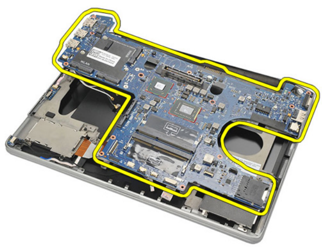
22. Remove the screws securing the system board.



23. Lift up the right side of the system board along with the USB and HDMI connectors and pull out the wireless antenna cables from the opening in the system board.



24. Slide out the left side connectors from their apertures and remove the system board.



Installing The System Board

1. Insert the wireless antenna cables through the system board opening.
2. Align the system board properly, with the eSATA, USB, headphone/ microphone, and VGA port connectors fitting into the apertures.

   NOTE: The left and right connectors should fit properly. If not, re-adjust the system board position to align them.
3. Tighten the screws securing the system board in place.
4. Connect the following cables to the system board:

   - express card

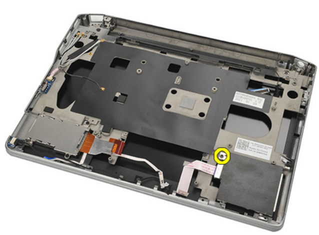
- wireless switch

5. Turn the computer over. Connect the Low-voltage differential signaling (LVDS) cable to the system board.
6. Install the LVDS bracket and tighten with the screws.
7. Install the *coin-cell battery*.
8. Install the *DC-in-Connector*.
9. Install the *heatsink*.
10. Install the *bottom chassis*.
11. Install the *keyboard*.
12. Install the *palm rest*.
13. Install the *speakers*.
14. Install the *Bluetooth module*.
15. Install the *Wireless Wide Area Network (WWAN) card*.
16. Install the *Wireless Local Area Network (WLAN) card*.
17. Install the *hard drive*.
18. Install the *memory*.
19. Install the *base cover*.
20. Install the *subscriber identity module (SIM) card*.
21. Install the *battery*.
22. Install the *secure digital (SD) Card*.
23. Follow the procedures in *After Working Inside Your Computer*.

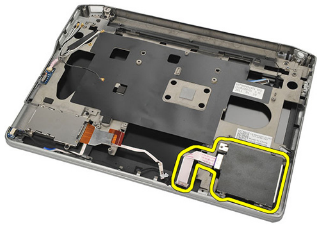
Smart Card Cage 24

Removing The Smart Card Cage

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *battery*.
4. Remove the *subscriber identity module (SIM) Card*.
5. Remove the *base cover*.
6. Remove the *memory*.
7. Remove the *hard drive*.
8. Remove the *Wireless Local Access Network (WLAN) card*.
9. Remove the *Wireless Wide Area Network (WWAN) card*.
10. Remove the *Bluetooth module*.
11. Remove the *speakers*.
12. Remove the *palm rest*.
13. Remove the *keyboard*.
14. Remove the *bottom chassis*.
15. Remove the *heatsink*.
16. Remove the *DC-in-Connector*.
17. Remove the *coin-cell battery*.
18. Remove the *system board*.
19. Remove the screw that secures the smart card cage.



20. Slide out the smart card cage and remove it from the computer.



Installing The Smart Card Cage

1. Insert the smart card cage into its compartment.
2. Tighten the screw to secure the smart card cage.
3. Install the *system board*.
4. Install the *coin-cell battery*.
5. Install the *DC-in-Connector*.
6. Install the *heatsink*.
7. Install the *bottom chassis*.
8. Install the *keyboard*.
9. Install the *palm rest*.
10. Install the *speakers*.
11. Install the *bluetooth module*.
12. Install the *Wireless Wide Area Network (WWAN) card*.
13. Install the *Wireless Local Area Network (WLAN) card*.
14. Install the *hard drive*.
15. Install the *memory*.
16. Install the *base cover*.
17. Install the *subscriber identity module (SIM) card*.
18. Install the *battery*.
19. Install the *secure digital (SD) Card*.
20. Follow the procedures in *After Working Inside Your Computer*.

Display Assembly

25

Removing The Display Assembly

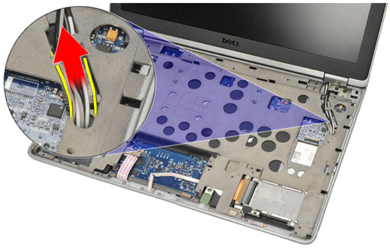
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *palm rest*.
5. Remove the *keyboard*.
6. Remove the screws from the bottom chassis.



7. Disconnect all the wireless antenna cables.



8. Turn over the computer and lift it up slightly. Pull out the wireless antenna cables from the opening in the computer and unthread them from the holder.



9. Remove the screws from the Low Voltage Differential Signalling (LVDS) bracket.



10. Remove the LVDS bracket.



11. Disconnect the LVDS cable from the system board.



12. Remove the screws from the hinges.

NOTE: Ensure that you hold the display assembly firmly with one hand before removing the last screw from the hinges. This is to avoid the display panel from falling over and getting damaged.



13. Remove the display assembly from the computer.



Installing The Display Assembly

1. Align the display hinges on the computer.
2. Replace and tighten the screws on the hinges.
3. Connect the Low Voltage Differential Signaling (LVDS) cable to the system board.
4. Install the LVDS bracket and replace and tighten the screws to secure it.
5. Insert the wireless antenna cables into the holder. Lift the back of the computer slightly and insert the wireless antenna cables through the

opening in the computer. Pull the antenna cables out from the bottom chassis.

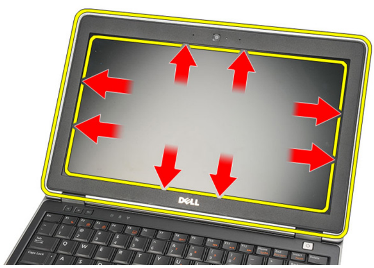
6. Turn over the computer. Connect the wireless antenna cables to their respective modules.
7. Replace and tighten the screws on the bottom chassis.
8. Install the *keyboard*.
9. Install the *palm rest*.
10. Install the *base cover*.
11. Install the *battery*.
12. Follow the procedures in *After Working Inside Your Computer*.

Display Bezel 26

Removing The Display Bezel

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Using a plastic scribe, pry from the top left corner of the display bezel. Slide the plastic scribe along the top side of the bezel before moving left to release all the snaps.

   NOTE: The bottom of the bezel is firmly attached with snaps and adhesive tape, thus the technician needs to be careful when separating the bottom of the display bezel from the display assembly.



4. Remove the display bezel.



Installing The Display Bezel

1. Attach the display bezel to the display assembly and align them up on the computer.
2. Press along the bottom of the bezel before moving on to the left, right and top, until all the snaps are in place.
3. Install the *battery*.
4. Follow the procedures in *After Working Inside Your Computer*.

Display Panel 27

Removing The Display Panel

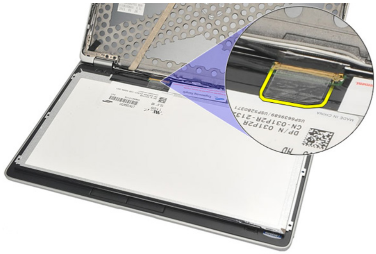
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *display bezel*.
4. Remove the screws from the display panel.



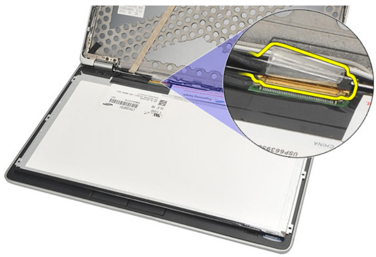
5. Rotate the display panel over to the keyboard.



6. Peel of the adhesive tape that secures the Low Voltage Differential Signalling (LVDS) connection to the display panel.



7. Disconnect the LVDS cable from the display panel.



8. Remove the display panel from the computer.



Installing The Display Panel

1. Place the display panel on top of the keyboard.
2. Connect the Low Voltage Differential Signalling (LVDS) cable to the display panel and attach the adhesive tape to secure the connection.
3. Rotate the display panel upwards into its compartment.
4. Replace and tighten the screws to secure the display panel.
5. Install the *display bezel*.
6. Install the *battery*.
7. Follow the procedures in *After Working Inside Your Computer*.

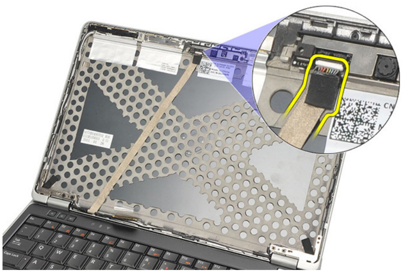
Camera 28

Removing The Camera

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *display bezel*.

   NOTE: The computer has either a camera with a microphone module or a microphone only module. Either of them resides in the same slot.

4. Disconnect the cable from the camera and/or microphone module.



5. Remove the screw that secures the module.



6. Remove the camera and/or microphone by disconnecting from the cable on the display top cover.



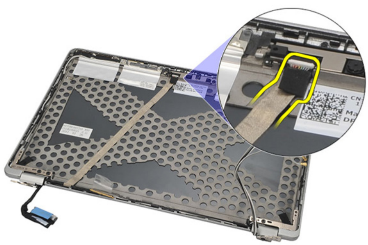
Installing The Camera

1. Connect the camera and/or microphone module to its cable on the display top cover.
2. Attach the module into its compartment and tighten the screw to secure it.
3. Install the *display bezel*.
4. Install the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

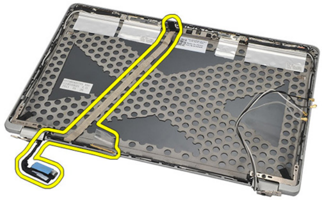
Low-Voltage Differential Signaling (LVDS) Camera Cable 29

Removing The Low Voltage Differential Signaling (LVDS) Cable

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *palm rest*.
5. Remove the *keyboard*.
6. Remove the *display assembly*.
7. Remove the *display bezel*.
8. Remove the *display panel*.
9. Disconnect the LVDS/Camera/Microphone cable assembly from the camera and/or microphone module.



10. Peel off the LVDS/Camera/Microphone cable assembly from the top cover and remove it.



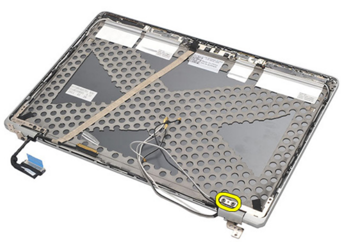
Installing The Low Voltage Differential Signaling (LVDS) Cable

1. Connect the LVDS/Camera/Microphone cable assembly to the camera and/or microphone module.
2. Align the cable and attach it to the top cover.
3. Install the *display panel*.
4. Install the *display bezel*.
5. Install the *display assembly*.
6. Install the *keyboard*.
7. Install the *palm rest*.
8. Install the *base cover*.
9. Install the *battery*.
10. Follow the procedures in *After Working Inside Your Computer*.

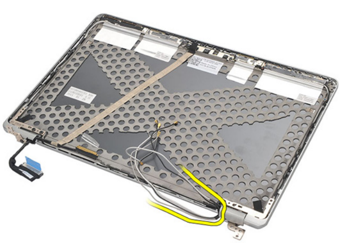
Display Hinges 30

Removing The Display Hinges

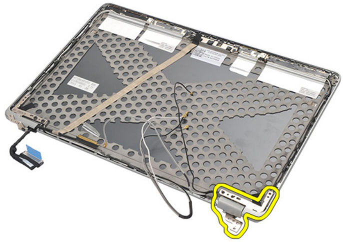
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *palm rest*.
5. Remove the *keyboard*.
6. Remove the *display assembly*.
7. Remove the *display bezel*.
8. Remove the *display panel*.
9. Remove the screws that secure the hinge.



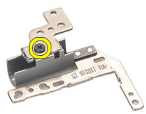
10. Release the wireless cable from within the hinge cap.



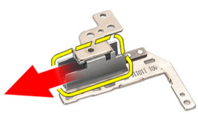
11. Rotate the hinge sideways until it is free.



12. Remove the screw that secures the hinge cap.



13. Slide off the hinge cap from the hinge. Repeat all the steps to remove the other hinge.



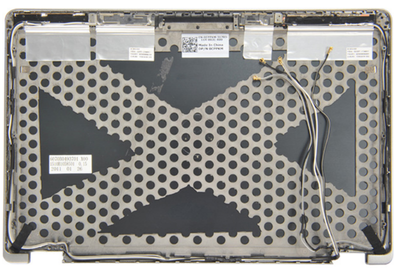
Installing The Display Hinges

1. Slide the hinge cap onto the hinge and tighten the screw to secure it.
2. Slide the wireless antenna cables into the hinge cap.
3. Slide in and rotate the hinge onto the display top cover.
4. Replace and tighten the screws to secure the hinge in place.
5. Install the *display panel*.
6. Install the *display bezel*.
7. Install the *display assembly*.
8. Install the *keyboard*.
9. Install the *palm rest*.
10. Install the *base cover*.
11. Install the *battery*.
12. Follow the procedures in *After Working Inside Your Computer*.

Display Top Cover 31

Removing The Display Top Cover

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *palm rest*.
5. Remove the *keyboard*.
6. Remove the *display assembly*.
7. Remove the *display bezel*.
8. Remove the *display panel*.
9. Remove the *camera and microphone*.
10. Remove the *low voltage differential signalling (LVDS) cable*.
11. Remove the *display hinges*.
12. Remove the display cover.



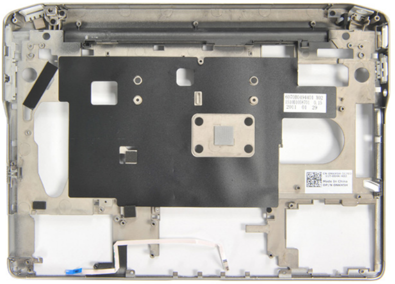
Installing The Display Top Cover

1. Replace the display top cover.
2. Install the *display hinges*.
3. Install the *low voltage differential signalling (LVDS) cable*.
4. Install the *camera and microphone*.
5. Install the *display panel*.
6. Install the *display bezel*.
7. Install the *display assembly*.
8. Install the *keyboard*.
9. Install the *palm rest*.
10. Install the *base cover*.
11. Install the *battery*.
12. Follow the procedures in *After Working Inside Your Computer*.

Mid Chassis 32

Removing The Mid Chassis

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *secure digital (SD) card*.
3. Remove the *ExpressCard*.
4. Remove the *battery*.
5. Remove the *Subscriber Identity module (SIM) Card*.
6. Remove the *base cover*.
7. Remove the *memory*.
8. Remove the *hard drive*.
9. Remove the *Wireless Local Access Network (WLAN) card*.
10. Remove the *Wireless Wide Area Network (WWAN) card*.
11. Remove the *Bluetooth module*.
12. Remove the *speakers*.
13. Remove the *palm rest*.
14. Remove the *keyboard*.
15. Remove the *bottom chassis*.
16. Remove the *heatsink*.
17. Remove the *DC-in-Connector*.
18. Remove the *wireless switch*.
19. Remove the *hall sensor*.
20. Remove the *ExpressCard cage*.
21. Remove the *system board*.
22. Remove the *smart card cage*.
23. Remove the *display assembly*.
24. Remove the mid chassis.



Installing The Mid Chassis

1. Install the mid chassis.
2. Install the *display assembly*.
3. Install the *smart card cage*.
4. Install the *system board*.
5. Install the *ExpressCard cage*.
6. Install the *hall sensor*.
7. Install the *wireless switch*.
8. Install the *DC-in-Connector*.
9. Install the *heatsink*.
10. Install the *bottom chassis*.
11. Install the *keyboard*.
12. Install the *palm rest*.
13. Install the *speakers*.
14. Install the *bluetooth module*.
15. Install the *Wireless Wide Area Network (WWAN) card*.
16. Install the *Wireless Local Area Network (WLAN) card*.
17. Install the *hard drive*.
18. Install the *memory*.
19. Install the *base cover*.
20. Install the *subscriber identity module (SIM) card*.
21. Install the *battery*.
22. Install the *ExpressCard*.
23. Install the *secure digital (SD) Card*.
24. Follow the procedures in *After Working Inside Your Computer*.

Specifications 33

Technical Specifications

NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information regarding the configuration of your computer, click **Start** → **Help and Support** and select the option to view information about your computer.

System Information	
Chipset	Intel Mobile QM67 Enhanced Chipset
DRAM bus width	64-bit
Flash EPROM	SPI 32 Mbits
PCIe Gen1 bus	100 MHz

Processor	
Types	• Intel Core i3 series • Intel Core i5 series • Intel Core i7 series
L2 cache	up to 6 MB
External bus frequency	1333 MHz

Audio	
Type	four-channel high definition audio
Controller	IDT 92HD90
Stereo conversion	24-bit (analog-to-digital and digital-to-analog)
Interface:	
Internal	high definition audio
External	microphone-in/stereo headphones/external speakers connector
Speakers	two
Internal speaker amplifier	2 W (typical) per channel
Volume controls	keyboard function keys, program menus

Video	
Video type	integrated on system board
Data bus	integrated video
Video controller	Intel HD Graphics 3000
Video memory	512 MB

Communications	
Network adapter	10/100/1000 Mbps Ethernet LAN
Wireless	internal wireless local area network (WLAN) and wireless wide area network (WWAN)

Ports and Connectors	
USB	two 4-pin USB 2.0-compliant connectors and one eSATA/USB 2.0-compliant connector
Memory card reader	one 3-in-1 memory card reader

Contactless Smart Card	
Supported Smart Cards/Technologies	ISO14443A — 106 kbps, 212 kbps, 424 kbps, and 848 kbps ISO14443B — 106 kbps, 212 kbps, 424 kbps, and 848 kbps ISO15693 HID iClass FIPS201 NXP Desfire

Display	
Type	white Light Emitting Diode (WLED) display
Size	12.5 inch high definition (HD)
Dimensions:	
Height	300.40 mm (7.58 inches)
Width	324.00 mm (12.76 inches)
Diagonal	355.60 mm (14.00 inches)
Active area (X/Y)	309.40 mm x 173.95 mm
Maximum resolution	1366 x 768 pixels at 262K colors
Maximum Brightness	200 nits
Operating angle	0° (closed) to 135°
Refresh rate	60 Hz
Minimum Viewing angles:	
Horizontal	+/- 40°
Vertical	+10°/-30°
Pixel pitch	0.2265 mm

Keyboard	
Number of keys:	United States: 86 keys, United Kingdom: 87 keys, Brazil: 87 keys, and Japan: 90 keys

Keyboard	
Layout	QWERTY/AZERTY/Kanji

Touchpad	
Active Area:	
X-axis	80.00 mm
Y-axis	40.70 mm

Battery	
Type	• 3-cell (30 WHr) "smart" lithium ion • 6-cell (60 WHr) "smart" lithium ion
Dimensions:	
3-cell	
Depth	29.97 mm (1.18 inches)
Height	19.80 mm (0.78 inches)
Width	208.00 mm (8.19 inches)
6-ell	
Depth	54.10 mm (2.13 inches)
Height	20.85 mm (0.82 inches)
Width	214.00 mm (8.43 inches)
Weight:	
3-cell	177.00 g (0.39 lb)
6-cell	349.00 g (0.77 lb)
Charge time for a 4-cell and 6- cell battery with computer off (with 90 W adapter)	approximately 1 hour to 80% capacity and 2 hours to 100% capacity.
Voltage	11.10 VDC
Temperature range:	
Operating	0 °C to 35 °C (32 °F to 95 °F)

Battery	
Non-Operating	–40 °C to 65 °C (–40 °F to 149 °F)
Coin-cell battery	3 V CR2032 lithium coin cell

AC Adapter	
Type	65 W and 90 W
Input voltage	100 VAC to 240 VAC
Input current (maximum)	1.50 A
Input frequency	50 Hz to 60 Hz
Output power	65 W / 90 W
Output current	
65 W	3.34 A (continuous)
90 W	4.62 A (continuous)
Rated output voltage	19.5 +/– 1.0 VDC
Temperature range:	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Non-Operating	–40 °C to 70 °C (–40 °F to 158 °F)

Physical	
Height	24.65 mm (0.97 inches)
Width	309.00 mm (12.16 inches)
Depth	226.00 mm (8.89 inches)
Weight (minimum)	1.43 kg (3.15 lb)

Environmental	
Operating	10 % to 90 % (noncondensing)
Storage	5 % to 95 % (noncondensing)
Altitude (maximum):	
Operating	–15.20 m to 3048 m (–50 ft to 10,000 ft)
Non-Operating	–15.20 m to 10,668 m (–50 ft to 35,000 ft)
Airborne contaminant level	G1 as defined by ISA-71.04–1985

System Setup 34

System Setup Overview

System Setup allows you to:

- change the system configuration information after you add, change, or remove any hardware in your computer.
- set or change a user-selectable option such as the user password.
- read the current amount of memory or set the type of hard drive installed.

Before you use System Setup, it is recommended that you write down the System Setup screen information for future reference.

CAUTION: Unless you are an expert computer user, do not change the settings for this program. Certain changes can cause your computer to work incorrectly.

Entering System Setup

1. Turn on (or restart) your computer.
2. When the blue DELL logo is displayed, you must watch for the F2 prompt to appear.
3. Once the F2 prompt appears, press <F2> immediately.

   NOTE: The F2 prompt indicates that the keyboard has initialized. This prompt can appear very quickly, so you must watch for it to display, and then press <F2> . If you press <F2> before you are prompted, this keystroke will be lost.
4. If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then, shut down your computer and try again.

System Setup Menu Options

The following sections describe the menu options for the System Setup program

General

The following table describe the menu options of the **General** menu.

Option	Description
System Information	This section lists the primary hardware features of your computer. • System Information • Memory Information • Processor Information • Device Information
Battery Information	Displays the battery status and the type of AC adapter connected to the computer.
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. • Diskette Drive • Internal HDD • USB Storage Device • CD/DVD/CD-RW Drive • Onboard NIC • Cardbus NIC You can also choose the Boot List option. The options are: • Legacy • UEFI
Date/Time	Allows you to change the date and time.

System Configuration

The following table describe the menu options of the **System Configuration** menu.

Option	Description

NOTE: System Configuration contains options and settings related to integrated system devices. Depending on your computer and installed devices, the items listed in this section may or may not appear.

Option	Description
Integrated NIC	Allows you to configure the integrated network controller. The options are:

	• Disabled • Enabled • Enabled w/PXE Default Setting: **Enabled w/PXE**
System Management	Allows you to control the systems management mechanism. The options are: • Disabled • DASH/ASF 2.0 Default Setting: **DASH/ASF 2.0**
Parallel Port	Allows you to configure the parallel port on the docking station. The options are: • Disabled • AT • PS2 • ECP Default Setting: **AT**
Serial Port	Allows you to configure the integrated serial port. The options are: • Disabled • COM1 • COM2 • COM3 • COM4 Default Setting: **COM1**
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are: • Disabled • ATA • AHCI • RAID On Default Setting: **RAID On**

NOTE: SATA is configured to support RAID mode.

USB Controller	Allows you to control the USB controller. The options are: • Enable Boot Support • Enable External USB Port Default Setting: **Enable USB Controller and Enable External USB Port**
SMART Reporting	- This field controls whether hard drive errors for integrated drives are reported during system start up.
Miscellaneous Devices	Allows you to enable or disable the following devices: • Internal Modem • Microphone • eSATA Ports • Hard Drive Free Fall Protection • Module Bay • ExpressCard • Camera You can also enable or disable: • Media Card and 1394 • Enable Media Card only • Disable Media Card and 1394 Default Setting: Media Card and 1394.
Keyboard illumination	Allows you to configure the keyboard illumination feature. The options are: • Disabled • Level is 25% • Level is 50% • Level is 75% • Levels is 100% Default Setting: **Level is 25%**

Drives	Allows you to configure the SATA drives on board. The options are: • SATA-0 • SATA-4 • SATA-5 Default Setting: All drives are enabled.

Video

The following table describe the menu options of the **Video** menu.

Option	Description
LCD Brightness	Allows you to set the display brightness depending up on the power source (On Battery and On AC).

Security

The following table describe the menu options of the **Security** menu.

	NOTE: Successful password changes take effect immediately. Default Setting: **Not set**
Internal HDD-0 Password	Allows you to set or change the system's internal hard-disk drive. **NOTE:** Successful password changes take effect immediately. Default Setting: **Not set**
Password Bypass	Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are: • Disabled • Reboot bypass Default Setting: **Disabled**
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set. Default Setting: **Allow Non-Admin Password Changes** is selected
Strong Password	Allows you to enforce the option to always set strong passwords. Default Setting: **Disabled**
TPM Security	Allows you to enable the Trusted Platform Module (TPM) during POST. Default Setting: **Disabled**
Computrace	Allows you to activate or disable the optional Computrace software The options are: • Deactivate • Disable • Activate

	NOTE: The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed Default Setting: **Deactivate**
CPU XD Support	Allows you to enable the Execute Disable mode of the processor. Default Setting: **Enabled**
Non-Admin Setup Changes	Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password. Default Setting: **Disabled**
Password Configuration	Allows you to determine the minimum and maximum length of Administrator and System passwords.
Admin Setup Lockout	Allows you to prevent users from entering Setup when an Administrator password is set. Default Setting: **Disabled**

Performance

The following table describe the menu options of the **Performance** menu.

Option	Description
Multi Core Support	Allows you to enable or disable multi-core support for the processor. The options are: • All • 1 • 2 Default Setting: **All**
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep feature. Default Setting: **Enabled**

C-States Control	Allows you to enable or disable the additional processor sleep states. Default Setting: The options **C states**, **C3**, **C6**, **Enhanced C-states**, and **C7** options are selected/enabled.
Limit CPUID	Allows you to limit the maximum value the processor Standard CPUID Function will support. Default Setting: **Enable CPUID Limit**
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. Default Setting: **Enabled**
HyperThread Control	Allows you to enable or disable the HyperThreading in the processor. Default Setting: **Enabled**

Power Management

The following table describe the menu options of the **Power Management** menu.

Option	Description
AC Behavior	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. Default Setting: **Disabled**
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: • Disabled • Every Day • Weekdays Default Setting: **Disabled**
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. Default Setting: **Disabled**

	NOTE: This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup will remove power from all of the USB ports to conserve battery power.
Wireless Radio Control	Allows you to enable or disable the feature that automatically switches from wired or wireless networks without depending on the physical connection. Default Setting: The options **Control WLAN radio** and **Control WWAN radio** are selected.
Wake on LAN/WLAN	This field allows the computer to power up from the off state when triggered by a special LAN signal or from Hibernate state when triggered by a special wireless LAN signal. Wake-up from the Standby state is unaffected by this setting and must be enabled in the operating system. This feature only works when the computer is connected to AC. • Disabled — Does not allow the system to power on when it receives a wake-up signal from the LAN or wireless LAN. • LAN Only — Allows the system to be powered on by special LAN signals. • WLAN Only — Allows the system to be powered on by special WLAN signals. • LAN or WLAN — Allows the system to be powered on by special LAN or wireless LAN signals. Default Setting: **Disabled**
ExpressCharge	Allows you to enable or disable the ExpressCharge feature. The options are: • Standard • ExpressCharge

	Default Setting: **ExpressCharge**
Charger Behaviour	Allows you to enable or disable. Default Setting: **Enabled**

POST Behavior

The following table describe the menu options of the **POST Behavior** menu.

Option	Description
Adapter Warnings	Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. Default Setting: **Enable Adapter Warnings** is selected.
Keypad (Embedded)	Allows you to choose one or two methods to enable the keypad that is embedded in the internal keyboard. • Fn Key Only • By Num Lk Default Setting: **Fn Key Only**
Mouse/Touchpad	Allows you to define how the system handles mouse and touchpad input. The options are: • Serial Mouse • PS2 Mouse • Touchpad/PS-2 Mouse Default Setting: **Touchpad/PS-2 Mouse**
Numlock Enable	Allows you to enable the Numlock option when the computer boots. Default Setting: **Enable Numlock** is selected.
Fn Key Emulation	Allows you to set the option where the <Scroll Lock> key is used to simulate the <Fn> key feature. Default Setting: **Enable Fn Key Emulation** is selected.

Keyboard Errors	This field specifies whether keyboard related errors are reported when it boots.
POST HotKeys	Allows you to enable the sign-on screen message display indicating the keystroke sequence to access the System Setup option menu. Default Setting: **Enable F12 Boot Option Menu** is selected.
Fastboot	Allows you to set the option to speed up the boot process. The options are: • Minimal • Thorough • Auto Default Setting: **Thorough**

Virtualization Support

The following table describe the menu options of the **Virtualization Support** menu.

Option	Description
Virtualization	Allows you to enable or disable the Intel Virtualization Technology. Default Setting: **Enable Intel Virtualization Technology** is selected.
VT for Direct I/O	Allows you to enable or disable Virtualization Technology for Direct I/O. Default Setting: **Disabled** is selected.
Trusted Execution	This option specifies wether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology. The TPM Virtualization Technology and Virtualization Technology for Direct I/O must be enabled to use this feature. Default Setting: **Disabled** is selected.

Wireless

The following table describe the menu options of the **Wireless** menu.

Option	Description
Wireless Switch	Allows you to set the wireless devices that can be controlled by the wireless switch. The options are: • WWAN • WLAB • Bluetooth Default Setting: All the options are selected.
Wireless Device Enable	Allows you to enable or disable the wireless devices Default Setting: All the options are selected.

Maintenance

The following table describe the menu options of the **Maintenance** menu.

Option	Description
Service Tag	Displays the Service Tag of your computer. **NOTE:** If a Service Tag has not been set for this system, the computer will automatically bring up this screen when users enter the BIOS. You will be prompted to enter the Service Tag.
Asset Tag	Displays the Asset Tag.
SERR Messages	This filed controls the SERR message mechanism. Some graphics cards require that the SERR message mechanism be disabled.

System Logs

The following table describe the menu options of the **System Logs** menu.

Option	Description

BIOS Events	Allows you to view and clear the System Setup (BIOS) POST events.
DellDiag Events	Allows you to view and clear the DellDiag events.
Thermal Events	Allows you to view and clear the Thermal events.
Power Events	Allows you to view and clear the Power events.

Diagnostics 35

Device Status Lights

	Turns on when you turn on the computer and blinks when the computer is in a power management mode.
	Turns on when the computer reads or writes data.
	Turns on steadily or blinks to indicate battery charge status.
	Turns on when wireless networking is enabled.

Battery Status Lights

If the computer is connected to an electrical outlet, the battery light operates as follows:

- **Alternately blinking amber light and white light** — An unauthenticated or unsupported non-Dell AC adapter is attached to your laptop.
- **Alternately blinking amber light with steady white light** — Temporary battery failure with AC adapter present.
- **Constantly blinking amber light** — Fatal battery failure with AC adapter present.
- **Light off** — Battery in full charge mode with AC adapter present.
- **White light on** — Battery in charge mode with AC adapter present.

Diagnostics

- *Device Status Lights*
- *Battery Status Lights*
- *LED Error Codes*

Device Status Lights

	Turns on when you turn on the computer and blinks when the computer is in a power management mode.
	Turns on when the computer reads or writes data.
	Turns on steadily or blinks to indicate battery charge status.
	Turns on when wireless networking is enabled.
	Turns on when a card with Bluetooth wireless technology is enabled. To turn off only the Bluetooth wireless technology function, right-click the icon in the system tray and select Disable Bluetooth Radio.

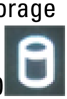
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- **White light on** — Battery in charge mode with AC adapter present.

LED Error Codes

The following table shows the possible LED codes that may display when your computer is unable to complete a power on self test.

Diagnostic LED			Error Description
HDD/ Storage LED 	Battery LED 	Wireless LED 	

Diagnostic LED			Error Description
Blinking	Solid	Solid	The microcontroller is handing control of the system to the processor. This code persists if no processor is detected.
Solid	Blinking	Solid	The memory has encountered an error.
Blinking	Blinking	Blinking	A system board component is faulty.
Blinking	Blinking	Solid	The video card is preventing the system from completing POST.
Blinking	Blinking	Off	The keyboard is preventing the system from completing POST.
Blinking	Off	Blinking	The USB controller encountered a problem during initialization.
Solid	Blinking	Blinking	No SODIMMs are installed.
Blinking	Solid	Blinking	The LCD encountered a problem during initialization.
Off	Blinking	Blinking	The modem is preventing the system from completing POST.

Contacting Dell 36

Contacting Dell

To contact Dell for sales, technical support, or customer service issues:

1. Visit support.dell.com.
2. Verify your country or region in the **Choose a Country/Region** drop-down menu at the bottom of the page.
3. Click **Contact Us** on the left side of the page.
4. Select the appropriate service or support link based on your need.
5. Choose the method of contacting Dell that is convenient for you.